

## **ABSTRACT**

An on-the-go sensor for determining the sugar content of an agricultural product, such as a sugar beet, during harvesting or at other times. The sensor is coupled to a harvester/defoliator and uses a knife to slice a cross-section from the crown of the sugar beet during harvesting. An illumination chamber radiates the exposed crown, and a sensor head receives the reflected radiation. A spectrometer converts the reflected radiation to a spectral signal. A computer digitizes and processes the spectral signal to produce data points relating to the sugar content of the sugar beet. The processing of the data points includes normalization, linearization, and other techniques. One of the techniques eliminates the conventional need to use the spectral signature of a separate physical standard as a reference.